

ABSTRACT OF THE DISCLOSURE

A wideband optical fiber amplifier that can amplify S-band optical signals, C-band optical signals and L-band optical signals. The wideband optical fiber amplifier includes a circulator for outputting optical signals inputted into a first port thereof to a second port thereof. In addition the amplifier outputs the amplified spontaneous emission (ASE) and the S-band optical signals inputted from the second port thereof to a third port. At least one optical fiber grating is used for passing the C- and L-band optical signals from among the optical signals outputted from the second port of the circulator, and for reflecting the S-band optical signals back to the second port of the circulator. The ASE is then input from an interior of the optical fiber grating to the second port of the circulator. An output unit outputs optical signals inputted into first to third terminals thereof to a fourth terminal thereof. A wavelength selective splitter outputs the L-band optical signals of the optical signals inputted into a first port thereof to a second port thereof and for outputting the C-band optical signals to a third port thereof connected the second terminal of the outputting unit. A first optical fiber amplifying unit connected with the optical fiber grating and the first port of the wavelength selective splitter, for amplifying the C- and L-band optical signals and for outputting the ASE to the optical fiber grating. A second optical fiber amplifying unit for amplifying the L-band optical signals inputted from the second port of the wavelength selective splitter and for outputting the amplified L-band optical signals to the third terminal of the outputting unit. A third optical fiber amplifying unit amplifies the S-band optical signals input from the third port of the circulator, and outputs the amplified S-band optical signals to the first terminal of the outputting unit.